
Maximizing the Benefit from the D&D Technology Development Program

Challenge

The Office of Deactivation and Decommissioning (D&D)/Facility Engineering (FE) is charged with reducing the technical risk and uncertainty of D&D activities across the Environmental Management (EM) Complex through the identification, development and demonstration of alternative technologies as well as through the provision of technical assistance activities such as Lessons Learned Workshops and External Technical Review Teams. There is a need to ensure an optimum balance between these different types of projects as well as to ensure that the projects funded are focused on the highest priority issues across the sites and give the maximum return on investment to DOE overall.

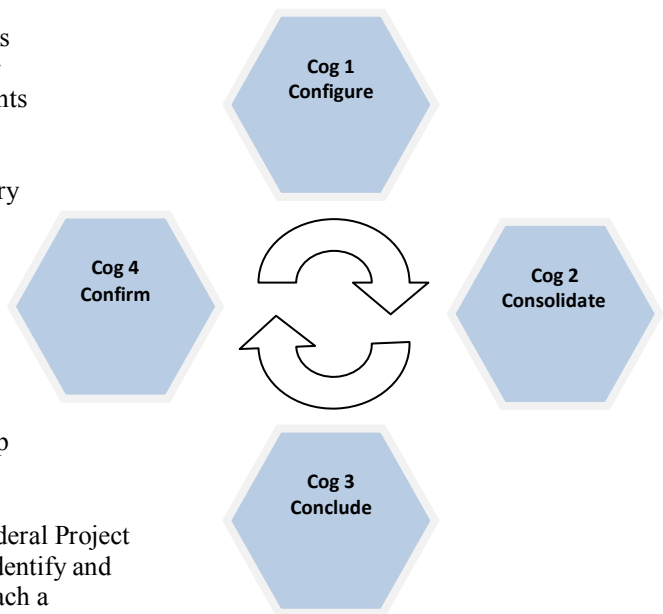
Technical Solution

NuVision Engineering, and its partner, Cogentus, incorporated a proven approach for Program optimization known as the Cogentus Framework. The process has been widely used in the United Kingdom (UK) to help prioritize project requirements in a number of industries including nuclear cleanup. The Cogentus Framework is a systematic means of identifying and evaluating options to seek solutions to complex problems with clarity and confidence. It is particularly powerful where there is a high level of stakeholder interest or influence and where there are conflicting requirements that need to be balanced. It may be applied at a strategic level where a choice has to be made between a number of distinct solutions or at a more detailed project level where it is necessary to identify the most appropriate solution to a specific task. The process is supported by computer software which allows quick and elegant sensitivity analysis to be carried out.

The key benefits of the approach are that it

- Incorporates consistency and rigor
- Is transparent and auditable
- Incorporates stakeholder input and ownership
- Is structured and comprehensive

A key element of the approach is working with the site EM Federal Project Directors (FPD), Project Managers and Prime Contractors to identify and agree upon technical needs, priorities and gaps as well as to reach a consensus view based on an objective and rigorous approach to scoring project benefits against agreed success criteria.



Technical Accomplishments

During the period July – September 2008, NuVision Engineering and Cogentus assembled a team of participants representing DOE HQ, DOE Field Offices and site contractors from sites including Savannah River, Oak Ridge, Richland, Idaho, Portsmouth and Paducah, as well as universities and technology vendors to identify pressing D&D technology

Site Project & Identifier	Tech Stage: Technical Assistance
Office level Program Planning	Process development

needs, develop tasks to address these needs and then to prioritize the tasks into an optimized program of work for FY09. In any given year there are inherent uncertainties in the final fiscal year Congressional budget determination, therefore, a number of different budgetary scenarios were assumed to allow several optimized approaches to be presented.

Ultimately more than 60 technology needs were identified and reviewed during two, 2-day workshops in August 2008, and these were honed to five major topic areas such as Hot Cell D&D, Large Item Characterization and Retrieval (e.g., Purex Tunnel or PFP D&D), Improved Fixatives and Dust Control, In-situ Entombment and Advanced Non-destructive Assay (NDA) Measurements and Techniques. Each Topic Area has been assigned to a smaller team comprising the site FPD, the site contractor and a member of DOE HQ D&D/FE staff in order to fully develop the tasks within the area of interest.

Impact

Prior to implementation of this new approach in D&D/FE, there was no single formal, objective or auditable method for identifying the merit of one project over another. This led to a portfolio of projects which did not necessarily represent the optimum program for the Department and did not necessarily focus on the most pressing needs across the Complex. Application of the Cogentus Framework has provided a cross-complex forum for identification and discussion of pressing D&D Technology Needs as well as a formal, objective and auditable approach to reviewing and prioritizing tasks to address those needs. In this way the approach will help decision makers to focus resources (both financial and staff) on the topics of highest priority across the complex as a whole.

Impact and Features

- Facilitation of a solid understanding of the tasks and the overall program among key stakeholders in the process.
- Creation of defendable, auditable, verified data set to support funding decisions.
- Clearer linkages of individual tasks to the overall EM Mission and the Engineering and Technology Roadmap.
- A mix of projects that provide maximum rate-of-return (ROI) in overall programmatic terms (i.e. reduction in technical risk and uncertainty, life cycle cost savings, environmental risk reduction, etc.)
- Recognition of synergies, overlaps, and complementary benefits from similar or related tasks across program areas, enabling reduction in the overall cost to the program to achieve higher benefits through better leveraging of related tasks.
- Team building, professional collaboration, and broadening of perspectives among program participants.
- Creation of a prioritized list of tasks and supporting data that can be used as a tool for program management, effective communications, and additional analysis and which can be controlled through a rigorous change/configuration control process.
- Creation of a foundational process that can be updated annually for prioritization of the out-year program and expanded into other areas with similar needs.
- Delivery of an approach which can, in a defensible and auditable way, enable program changes when circumstances change (e.g. budget cuts, addressing urgent issues etc.).

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Challenge Category		Tech Solution Category
<ul style="list-style-type: none"> • Program Development - decision making • Project Prioritization 		<ul style="list-style-type: none"> • Process Development • Management Tools